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(54) **SUPPORT DEVICE IN FORM OF A PAD, MAINLY FOR USE ONTO A MEDICAL BED**

STÜTZVORRICHTUNG IN FORM EINES KISSENS, HAUPTSÄCHLICH ZUR VERWENDUNG AUF EINEM MEDIZINISCHEN BETT

DISPOSITIF DE SUPPORT SOUS LA FORME D'UN COUSSIN PRINCIPALEMENT DESTINÉ À ÊTRE UTILISÉ SUR UN LIT MÉDICAL

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(73) Proprietor: **AB Medica S.p.A.**
20124 Milano (MI) (IT)

(72) Inventors:
- **BIANCHI, Carlambrogio**
  20124 Milano Mi (IT)
- **CASATI, Diego**
  20124 Milano Mi (IT)
- **BETTINELLI, Cristiano**
  20124 Milano Mi (IT)

(74) Representative: **Papa, Elisabetta et al**
Società Italiana Brevetti S.p.A
Via Carducci 8
20123 Milano (IT)

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Description

Technical field of the invention

[0001] The present invention relates to a support device, in particular substantially in the form of a mattress, mainly for use on a support structure in the form, for example, of a medical bed. The device is of the type having elements for connecting and locking to the support structure, for example in the form of a strap, strip or band.

Background

[0002] Many support devices in the form of a mattress are known in the art, which are typically arranged on an operating table, or on a different support structure, for example during a surgery.

[0003] Such devices typically provide a deformable main body, precisely in the form of a mattress, which is fixed to the operating table by means of strips or bands equipped with straps or Velcro® couplings at the ends. These fasteners are necessary to avoid a relative displacement between the mattress and the operating table during the setting up of the operating environment and during the related surgical procedure, in order to ensure the accuracy of the latter. In addition, in the case of interventions that involve an inclination of the bed for better access to the body areas of interest, these fixing elements help to ensure the absence of slipping between the mattress/patient and the surgical bed and therefore the safety of the patient.

[0004] Despite their wide use, the known support devices are still perfectible, above all in relation to the versatility of use on different operating tables or in different application conditions.

[0005] Another essential requirement to which an improvement solution can be provided is the simplicity of connection to the operating table or to a support structure in general.

[0006] US10,285,890B1 discloses a support device in the form of a pad which includes continuous transverse bands extending from side to side of the pad itself. At their ends, these bands incorporate elements for attachment to the operating table. The transverse bands can be connected to the main body of the mat by means of ring and hook coupling means.

Summary of the invention

[0007] The technical problem posed and solved by the present invention is therefore that of providing a support device which allows to overcome one or more of the drawbacks mentioned above with reference to the known art.

[0008] This problem is solved by a device according to claim 1.

[0009] Preferred features of the present invention are the subject of the dependent claims.

[0010] According to a preferred embodiment of the invention, the support device comprises the two main components listed below, which can be provided structurally distinct or integrated or connected to each other.

- A mattress element, or pad, configured to receive the body of a subject, typically a patient, in a fully or partially extended (prone or supine) position on it. To this end, this element generally has a flat and elongated shape in a longitudinal direction of a prevalent dimension with respect to the dimension in a transverse direction, both being widely greater than the thickness of the element itself.
- Fixing means to a support structure underlying the mattress element, typically an operating table or a transport stretcher, which fixing means generally include bands, strips or in any case oblong elements. Said fixing means are generally provided bilaterally, in correspondence with each of the transversely opposite longitudinal margin portions of the mat, and are connected or connectable to said portions.

[0011] According to an aspect of the invention, the fixing means have an adjustable longitudinal position continuously along both of said longitudinal margin portions of the mattress element.

[0012] In this way, the device is extremely versatile with respect to different applications and different support structures.

[0013] Advantageously, the mattress element can be configured to prevent the subject from slipping, even in longitudinally and/or transversely inclined positions typical of some surgical procedures, for example of the gynecological type.

[0014] In addition, the mattress element can exhibit a viscoelastic behavior to effect a more uniform distribution of loads on the subject, avoiding concentrated stresses due to the prolonged stay in contact with the support structure which could cause damage to the skin.

[0015] Advantageously, the mattress element can be made, at least in part, of an open cell expanded polymer, which allows the skin of the person lying on it to breathe, avoiding localized irritation.

[0016] Preferably, the mattress element is made entirely or partially in Polyurethane (PU), in particular expanded polyurethane, or in a material with similar physical-mechanical characteristics.

[0017] In preferred embodiments, the mattress element has biocompatibility properties and/or is fireproof.

[0018] According to an aspect of the invention, the support device comprises one or a pair of elements for adjusting said longitudinal position of the fixing means. Each adjustment element is in the form of an oblong longitudinal element that can be associated with the mattress element in correspondence with a respective portion of the longitudinal margin of the latter. In preferred embodiments, each adjustment element is in the form of a strip or band, or even of a sled, rail or guide element, fixed or fixable to the mattress element at said respective

portion of its longitudinal margin.

[0019] One or each adjustment element can be coupled with the respective fixing means for example by means of Velcro® elements, engagement of one or more pins or brackets in slots, sliding coupling of one or more pins in a guide or rail or similar methods.

[0020] Advantageously, the provision of the adjustment elements allows an independent control of the longitudinal position of the fixing means arranged at opposite transverse ends of the mattress element.

[0021] In one embodiment, each adjustment element consists of an elastic material, preferably having a stiffness of the same order of magnitude as that of the mattress element, with a difference of $\leq 20\%$.

[0022] Preferably, each adjustment element is made, completely or in part, of fabric, for example based on natural and/or synthetic fibers. In variant embodiments, each element has a coating, for example made of polymeric material such as Polyurethane, Polyvinyl chloride, Polyamide or the like. Other solutions can consist, for example, in a coupled Polyester/Polyurethane foam/Polyester, or in a simple sheet of polymeric material.

[0023] In one embodiment, each adjustment element is bound to the mattress element by means of a continuous junction area, arranged over the entire longitudinal extension of a long edge of the mattress element itself. In this way the position adjustment can be allowed along the entire longitudinal portion concerned.

[0024] This constraint, or mechanical connection, can be achieved by one or more of the following techniques: bonding, in particular with adhesive; welding, for example by ultrasound or heat sealing; melting using solvents; seam.

[0025] In specific embodiments, each adjustment element is, as mentioned, in the form of a strip or band, advantageously with a substantially rectangular or quadrangular plan, for example with a width of 50 mm.

[0026] The adjustment elements can also be fireproof.

[0027] As mentioned, the fixing means typically comprise strips or bands at both longitudinal sides of the mattress element, preferably two or three per side.

[0028] Preferably, the fixing means also include hooking elements, for example in the form of velcro, buckle, clip and/or button, provided at its distal end from the mattress element and configured for locking on the support structure.

[0029] The fixing means can be made of the same materials and structures already mentioned in relation to the adjustment elements.

[0030] It is also possible, for example, to use a non-woven fabric (TNT) belt.

[0031] The fixing means can also be fireproof.

[0032] In embodiments, which can be used synergistically or independently of the other aspects of the invention mentioned above, the fixing means can also be made of a material having an elastic modulus of the same order of magnitude as the mattress element, which helps to distribute the forces between the latter and the adjustment elements.

[0033] In a first preferred configuration, the main components mentioned above (mattress, fixing elements and adjustment elements) are supplied already mechanically connected to each other.

[0034] In an alternative configuration, they can be supplied mechanically separated from each other or only partially connected. For example, the adjustment elements can already be connected, in a reversible/adjustable way, to the fixing means, but not to the mattress element. Advantageously, in this case the adjustment elements can be prepared with a pre-applied adhesive layer protected by a removable covering, or liner, to be mechanically connected to the mattress at the time of use.

[0035] In this configuration, therefore, the device is supplied in the form of a kit.

[0036] In one embodiment, the device can comprise one or more pressure sensors or transducers, which, on the basis of the measured values, can transmit the detected data to a local or remote acquisition and/or control unit. Transmission can take place wirelessly (for example via Bluetooth and/or WiFi). These data, suitably processed, can provide a signal to operators regarding any critical areas, in order to act accordingly for the (re) positioning of the patient.

[0037] In a further variant, on the basis of the processing of the acquired data, commands (possibly arranged automatically) can be sent to a second device, arranged under the first, which selectively activates compensatory measures. For example, the second device could be divided into inflatable sectors, which can also be activated separately from each other, to optimally redistribute the loads, thus avoiding the physical intervention of the operator.

[0038] The aforementioned sensors or transducers can be integrated into one or more of the components of the device introduced above or applied to the surface of this/these, for example printed on one face of the mattress element.

[0039] Also or only detectors other than pressure sensors or transducers may be provided, for example suitable for measuring any vital parameter such as for example ECG, pulse, heart rate, respiratory rate and temperature.

[0040] Other advantages, characteristics and methods of use of the present invention will become evident from the following detailed description of some embodiments, presented by way of example and not of limitation.

Brief description of figures

[0041] Reference will be made to the figures of the attached drawings, in which:

- Figure 1 refers to a first embodiment of a support device according to the invention, showing an exploded perspective view thereof;

- Figures 2 e 2A refer to a support device according to another embodiment of the invention, showing respectively an exploded perspective view and an enlarged detail of the latter;

- Figures 3, 3A e 3B refer to a support device according to a further embodiment of the invention, showing respectively an exploded perspective view and a first and second enlarged detail of the latter.

[0042] In the figures introduced above, the dimensions are intended as purely illustrative and not necessarily with components shown in proportion.

Detailed description of preferred embodiments

[0043] The following will describe different embodiments and variants of the invention and its parts, based on different aspects of it that can be used separately or in combination and this with reference to the figures introduced above.

[0044] Similar components are denoted in the various figures with the same or corresponding numerical reference. In particular, in the embodiments of Figures 2, 2A and 3, 3A, 3B numerical references corresponding to those of the embodiment of Figure 1, with numbering starting from 100 and 200, respectively, are used.

[0045] In the detailed description that follows, further embodiments and variants with respect to embodiments and variants already treated in the same description will be illustrated limitedly to the differences with what has already been disclosed.

[0046] Furthermore, as mentioned, the various embodiments and variants described below are capable of being used in combination, where compatible.

[0047] With reference initially to Figure 1, a support device according to a first preferred embodiment of the invention is generally denoted with 1.

[0048] The support device 1 is intended mainly for use on a support structure, in particular a fixed or mobile medical bed, subjected to the device itself.

[0049] The support device 1 comprises a mattress element, or pad, 2, configured to receive the body of a subject in a lying position on it. To this end, the mattress element 2 generally has a planar or flat conformation, in particular quadrangular, with a longitudinal dimension in the L direction prevalent with respect to a dimension in the transverse direction T, and both prevailing with respect to the thickness in the s direction.

[0050] In preferred embodiments, the mattress element 2 is configured to support the subject, preventing it from slipping even when placed in longitudinally and/or transversely inclined postures.

[0051] The mattress element 2 advantageously has a viscoelastic behavior to effect a more uniform distribution of loads on the patient, avoiding concentrated stresses.

[0052] Preferably, the mattress element is made entirely in part in Polyurethane (PU), in particular expanded polyurethane, or in a material with similar mechanical characteristics of elasticity and/or deformability.

[0053] The support device 1 also comprises fixing means 3 of the mattress element 2 to the support structure. In the present example, these fixing means 3 comprise a plurality of oblong fixing elements, each preferably in the form of a strip, band or strap, arranged bilaterally at a first and a second longitudinal margin portion of the mattress element 2, the latter denoted respectively with 20 and 21. For simplicity, in Figure 1 only three fixing elements are represented, denoted respectively with 31, 32 and 33, associated with the first portion of the longitudinal margin 20 of the mattress element 2.

[0054] In some embodiments, each fixing element 31, 32, 33 has stiffness of the same order of magnitude, in particular with a percentage difference $\leq 20\%$, of the mattress element 2 and/or of the longitudinal margin portions 20, 21 of this 'last.

[0055] Each fixing element introduced above, for example the element denoted by 31, has a first portion 34 equipped with first coupling elements, for example of the Velcro® type, also denoted by 34. This first portion 34 is arranged, in use, proximal to the mattress element 2. A second portion 35 of the fixing element 31, integral and/or united with the first portion 34, is disposed, in use, in a distal position with respect to the mattress element 2 and it is equipped with its own further first and second coupling means, for example of the Velcro® type, so as to be able to fold back on itself forming a ring or loop 30 for locking with a bar or other component of the support structure.

[0056] The support device 1 then comprises a first and a second element for adjusting the longitudinal position of the fixing elements 3 introduced above, denoted respectively by 10 and 10'and each arranged in correspondence with a respective portion of the longitudinal margin 20, 21 of the mattress element 2. Each adjustment element 10, 10'is substantially configured in the form of a strip or longitudinal band.

[0057] Each adjustment element 10, 10'is arranged, in use, interposed between the mattress element 2 and the fixing means 3 to connect one to the other. To this end, each adjustment element 10, 10' carries second coupling means 11, for example of the Velcro® type, complementary to those provided on the portion 34 of the fixing element 31, 32 and/or 33. In this way, it is possible to connect each of the fixing elements, for example the one denoted by 31, in any longitudinal position, or coordinate, P along the adjustment element 10. A continuous step position adjustment of the aforesaid position is therefore allowed.

[0058] Each adjustment element 10, 10'is connected to the respective portion of the longitudinal margin 20, 21 of the mattress element 2 preferably at a lower face of the element 2 itself. In particular, each adjustment element can be completely or partially superimposed transversely to the mattress element 2, in the second case protruding laterally towards the outside with respect to it.

[0059] In one embodiment, each adjustment element 10, 1O'has stiffness of the same order of magnitude, in particular with a percentage difference ≤ 20%, of the mattress element 2 and/or of the longitudinal margin portions 20, 21 of this' last.

[0060] Each fixing element 31, 32, 33 can have, in cross section, a multilayer structure, in particular a sandwich structure, which comprises an intermediate layer of polyurethane foam and two external layers of polyester.

[0061] The same structure can also be provided for each of the adjustment elements 10 and 10'.

[0062] Figures 2 and 2A refer to a second embodiment of the support device of the invention, here globally denoted with 100. As mentioned, only the components different from those of the first embodiment and related variants illustrated above will be described. The components are denoted with numerical references corresponding to those of Figure 1, in this case on the basis of numbering starting from 100.

[0063] In the present embodiment, the coupling between adjustment elements, here denoted by 110 and 110', and fixing elements, some of which denoted by 131, 132 and 133, is obtained in discrete positions, by means of a reversible coupling between a proximal bracket portion 134 of each fixing element and any slot 111, 111'of a plurality formed in the adjustment element 110, 110'. In Figure 2, all the slots 111 of the adjustment element 110 are represented as being engaged by a corresponding fixing element 131, 132, 133, while it is understood that the position of a plurality of slots 111 along the element 110 allows a choice of the discrete position P, more suitable for fixing elements with fewer than the same slots.

[0064] The distal portion 135 of each fixing element also has a slot configuration to allow fixing to the support structure by means of a loop or ring 130.

[0065] Figures 3, 3A and 3B refer to a third preferred embodiment of the support device of the invention, here globally denoted by 200. As mentioned, only the components different from those of the first embodiment and relative variants will be described. illustrated above. Also in this case, the components are denoted with numerical references corresponding to those of Figure 1, on the basis of numbering starting from 200.

[0066] In the present embodiment, the adjustment elements, denoted here with 210 and 210', consist or include a slide, guide or rail having a substantially inverted "U" or "C" section, or a prismatic conformation with an open side for sliding engagement by one or more pins 236.

[0067] Each guide 210, 21O'can be received in a special longitudinal seat, or cavity 240 of the mattress element 202.

[0068] Each pin 236 is associated with a fixing element, denoted for example with 231, 232 or 233. Each pin 236 is received, in a removable or fixed way, within a seat, in particular through, 237, obtained in correspondence with a proximal portion 234 of the respective fixing element, for example the one denoted by 231.

[0069] The coupling described allows a continuous adjustment of the longitudinal position P of each fixing element.

[0070] The distal portion 235 of each fixing element also bears a construction with multiple slots 238, with a pin 239 receivable in pairs of slots obtained by folding said portion 235 on itself so as to form a ring or loop 230. Also in this case, the pin 239 can be permanently locked in one of the slots or removably received therein. The arrangement of multiple slots, in particular in a number greater than two, on the end portion 235 of each fixing element allows an adjustment of the width of the ring or loop 230.

[0071] The present invention has been described up to now with reference to preferred embodiments. It is to be understood that there may be other embodiments that pertain to the same inventive core, as defined by the scope of the claims set out below.

Claims

1. Support device (1; 100; 200) for use upon a support structure, in particular a fixed or mobile medical bed, underlying it,
   which support device comprises:

   - a mattress element (2; 102; 202), configured to receive upon it the body of a subject in a lying position and to this aim presenting a flat conformation with a longitudinal dimension (L) prevalent with respect to a transversal dimension (T);
   - fixing means (31; 131; 231) of the mattress element to the support structure; **characterized in that** said support device further comprises
   - a first and a second adjustment element (10, 10'; 110, 110'; 210, 210'), each constrained, in use, at a respective portion of the longitudinal margin (20, 21; 120, 121; 220, 221) of said mattress element by means of a continuous junction area and configured to allow a connection of said fixing means to said mattress element with a continuously adjustable position (P) along said longitudinal margin portion of said mattress element, wherein each of said first and second adjustment element is configured in the form of a strip or a longitudinal band or a slide element, rail or longitudinal guide (210).

2. The support device (1; 100; 200) according to claim 1, wherein said fixing means comprises one or more oblong fixing elements (31-33; 131-133; 231-233), each for example in the form of a band or strip.

3. The support device (1) according to any one of the preceding claims, wherein one or each of said adjustment elements has first Velcro® type connection

means (11) and said fixing means comprise second Velcro® connection means (34) complementary to said first means.

4. The support device (100) according to any one of the preceding claims, wherein one or each of said adjustment elements has first connection means of the slot type (111) and said fixing means comprise second bracket connection means (134) configured to engage said first means.

5. The support device (200) according to any one of the preceding claims, wherein one or each of said adjustment elements comprises a slide, rail or longitudinal guide element (210) and said fixing means comprises corresponding pin connection means (236) configured to slidably engage said slide, rail or guide element.

6. The support device (1; 100; 200) according to any one of the preceding claims, wherein, in use, each of said adjustment elements is connected to the respective portion of the longitudinal margin of said mattress element at its own first portion longitudinal and protrudes externally with respect to said mattress element with its own second longitudinal portion in correspondence with which said fixing means are connected or connectable.

7. The support device (1; 100; 200) according to any one of the preceding claims, wherein said continuous junction area corresponds substantially to the whole longitudinal extension of the respective portion of the longitudinal margin of the mattress element (2) itself.

8. The support device (1; 100; 200) according to any one of the preceding claims, wherein, in use, each of said adjustment elements is constrained to said mattress element by one or more of the following techniques: gluing; welding, for example by ultrasound or heat sealing; melting using solvents; seam.

9. The support device (1; 100; 200) according to any one of the preceding claims, wherein said fixing means comprise at least one fixing element configured to form, in use, a ring (30; 130; 230), or loop, connecting it to the support structure.

10. The support device (1; 100; 200) according to any one of the preceding claims, wherein said fixing means comprise at least one fixing element carrying Velcro® (35), slot (135), clip and/or button (239) type closure means configured for connection to the support structure.

11. The support device (1; 100; 200) according to any one of the preceding claims, wherein said first and second adjustment elements (10, 10'; 110, 110'; 210, 210') allow independent control of the position longitudinal fixing means (31; 131; 231) arranged at opposite transverse ends of the mattress element (2; 102; 202).

12. The support device (1; 100; 200) according to any one of the preceding claims, which is supplied in the form of a kit.

Patentansprüche

1. Trägervorrichtung (1; 100; 200) zur Verwendung auf einer Trägerstruktur, insbesondere einem ihr zugrunde liegenden festen oder mobilen medizinischen Bett,
wobei die Trägervorrichtung umfasst:

- ein Matratzenelement (2; 102; 202), das konfiguriert ist, um den Körper eines Subjekts in einer liegenden Position auf ihm aufzunehmen und das zu diesem Ziel einen flachen Bau mit einer Längsabmessung (L) darstellt, die hinsichtlich einer Querabmessung (T) vorherrscht;
- Fixiermittel (31; 131; 231) des Matratzenelements an der Trägerstruktur **dadurch gekennzeichnet, dass** die Trägervorrichtung ferner umfasst:

  - ein erstes und ein zweites Einstellelement (10, 10'; 110, 110'; 210, 210'), die jeweils, in einer Verwendung, an einem jeweiligen Abschnitt des Längsrands (20, 21; 120, 121; 220, 221) des Matratzenelements mittels eines durchgehenden Übergangsbereichs gebunden und konfiguriert sind, um eine Verbindung des Fixiermittels mit dem Matratzenelement mit einer durchgehend einstellbaren Position (P) entlang des Längsrandabschnitts des Matratzenelements zu ermöglichen, wobei jedes des ersten und des zweiten Einstellelements in Form einer Leiste oder eines Längsbands oder eines Gleitelements, einer Schiene oder einer Längsführung (210) konfiguriert ist.

2. Trägervorrichtung (1; 100; 200) nach Anspruch 1, wobei das Fixiermittel ein oder mehrere längliche Fixierelemente (31-33; 131-133; 231-233) umfasst, die jeweils zum Beispiel in Form eines Bandes oder einer Leiste ausgebildet sind.

3. Trägervorrichtung (1) nach einem der vorstehenden Ansprüche, wobei eines oder jedes der Einstellelemente erste Verbindungsmittel (11) einer Velcro®-Art aufweist und die Fixiermittel zweite Velcro®-Verbindungsmittel (34) umfassen, die zu den

ersten Mitteln komplementär ist.

4. Trägervorrichtung (100) nach einem der vorstehenden Ansprüche, wobei eines oder jedes der Einstellelemente erste Verbindungsmittel des Schlitztyps (111) aufweist und die Fixiermittel zweite Halterungsverbindungsmittel (134) umfassen, die konfiguriert sind, um die ersten Mittel in Eingriff zu nehmen.

5. Trägervorrichtung (200) nach einem der vorstehenden Ansprüche, wobei eines oder jedes der Einstellelemente einen Gleit-, Schienen- oder Längsführungselement (210) umfasst und das Fixiermittel entsprechende Stiftverbindungsmittel (236) umfasst, die konfiguriert sind, um das Gleit-, Schienen- oder Führungselement gleitbar in Eingriff zu bringen.

6. Trägervorrichtung (1; 100; 200) nach einem der vorstehenden Ansprüche, wobei, bei der Verwendung, jedes der Einstellelemente mit dem jeweiligen Abschnitt des Längsrands des Matratzenelements an seinem eigenen ersten Abschnitt in Längsrichtung verbunden ist und hinsichtlich des Matratzenelements mit seinem eigenen zweiten Längsabschnitt vorsteht, in Übereinstimmung mit dem die Fixiermittel verbunden oder verbindbar sind.

7. Trägervorrichtung (1; 100; 200) nach einem der vorstehenden Ansprüche, wobei der durchgehende Übergangsbereich im Wesentlichen der gesamten Längserstreckung des jeweiligen Abschnitts des Längsrands des Matratzenelements (2) selbst entspricht.

8. Trägervorrichtung (1; 100; 200) nach einem der vorstehenden Ansprüche, wobei, bei der Verwendung, jedes der Einstellelemente durch eine oder mehrere der folgenden Techniken an das Matratzenelement gebunden ist: Kleben; Schweißen, zum Beispiel durch Ultraschall oder Heißsiegeln; Schmelzen unter Verwendung von Lösungsmittel; Naht.

9. Trägervorrichtung (1; 100; 200) nach einem der vorstehenden Ansprüche, wobei die Fixiermittel mindestens ein Fixierelement umfassen, das konfiguriert ist, um, bei der Verwendung, einen Ring (30; 130; 230) oder eine Schlaufe auszubilden, die es mit der Trägerstruktur verbindet.

10. Trägervorrichtung (1; 100; 200) nach einem der vorstehenden Ansprüche, wobei die Fixiermittel mindestens ein Fixierelement umfassen, das Verschlussmittel einer Velcro®- (35), Schlitz- (135), Klammer- und/oder Knopf-(239)Art trägt, die für eine Verbindung mit der Trägerstruktur konfiguriert sind.

11. Trägervorrichtung (1; 100; 200) nach einem der vorstehenden Ansprüche, wobei das erste und das zweite Einstellelement (10, 10'; 110, 110'; 210, 210') eine unabhängige Steuerung der Positionslängsfixiermittel (31; 131; 231) ermöglichen, die an gegenüberliegenden Querenden des Matratzenelements (2; 102; 202) angeordnet sind.

12. Trägervorrichtung (1; 100; 200) nach einem der vorstehenden Ansprüche, die in Form eines Kits bereitgestellt wird.

Revendications

1. Dispositif de support (1 ; 100 ; 200) destiné à être utilisé sur une structure de support, en particulier un lit médical fixe ou mobile, sous-jacent,
lequel dispositif de support comprend :

- un élément de matelas (2 ; 102 ; 202), conçu pour recevoir le corps d'un sujet dans une position distendue et dans ce but présentant généralement une configuration plate avec une dimension longitudinale (L) prévalant par rapport à une dimension transversale (T) ;
- un moyen de fixation (31 ; 131 ; 231) de l'élément de matelas à la structure de support ; **caractérisé en ce que** ledit dispositif de support comprend en outre
- un premier et un second élément de réglage (10, 10' ; 110, 110' ; 210, 210'), chacun contraint, lors de l'utilisation, au niveau d'une partie respective du bord longitudinal (20, 21 ; 120, 121 ; 220, 221) dudit élément de matelas au moyen d'une zone de jonction en continu et conçue pour permettre une liaison dudit moyen de fixation audit élément de matelas avec une position (P) réglable en continu le long de ladite partie de bord longitudinal dudit élément de matelas, dans lequel chacun desdits premier et second éléments de réglage est conçu sous la forme d'un ruban longitudinal ou d'une bande longitudinale ou d'une glissière, d'un rail ou d'un guide longitudinal (210).

2. Dispositif de support (1 ; 100 ; 200) selon la revendication 1, dans lequel ledit moyen de fixation comprend un ou plusieurs éléments de fixation oblongs (31-33 ; 131-133 ; 231- 233), chacun par exemple sous la forme d'un ruban ou d'une bande.

3. Dispositif de support (1) selon l'une quelconque des revendications précédentes, dans lequel un ou chacun desdits éléments de réglage a un premier moyen de liaison de type Velcro® (11) et ledit moyen de fixation comprend un second moyen de liaison Velcro® (34) complémentaire dudit premier moyen.

4. Dispositif de support (100) selon l'une quelconque des revendications précédentes, dans lequel un ou chacun desdits éléments de réglage a un premier moyen de liaison de type fente (111) et ledit moyen de fixation comprend un second moyen de liaison de console (134) conçu pour venir en prise avec ledit premier moyen.

5. Dispositif de support (200) selon l'une quelconque des revendications précédentes, dans lequel un ou chacun desdits éléments de réglage comprend une glissière, un rail ou un élément de guidage longitudinal (210) et ledit moyen de fixation comprend un moyen de liaison de broche correspondant (236) conçu pour venir en prise de manière coulissante avec ladite glissière, rail ou élément de guidage.

6. Dispositif de support (1 ; 100 ; 200) selon l'une quelconque des revendications précédentes, dans lequel, lors de l'utilisation, chacun desdits éléments de réglage est relié à la partie respective du bord longitudinal dudit élément de matelas au niveau de sa propre première partie longitudinale et fait saillie extérieurement par rapport audit élément de matelas avec sa propre seconde partie longitudinale en correspondance avec lequel dit moyen de fixation est relié ou peut être relié.

7. Dispositif de support (1 ; 100 ; 200) selon l'une quelconque des revendications précédentes, dans lequel ladite zone de jonction continue correspond sensiblement à toute l'extension longitudinale de la partie respective du bord longitudinal de l'élément de matelas (2) lui-même.

8. Dispositif de support (1 ; 100 ; 200) selon l'une quelconque des revendications précédentes, dans lequel, lors de l'utilisation, chacun desdits éléments de réglage est contraint audit élément de matelas par une ou plusieurs des techniques suivantes : collage ; soudage, par exemple soudage par ultrasons ou thermosoudage ; fusion à l'aide de solvants ; couture.

9. Dispositif de support (1 ; 100 ; 200) selon l'une quelconque des revendications précédentes, dans lequel ledit moyen de fixation comprend au moins un élément de fixation conçu pour former, lors de l'utilisation, un anneau (30 ; 130 ; 230), ou une boucle, le reliant à la structure de support.

10. Dispositif de support (1 ; 100 ; 200) selon l'une quelconque des revendications précédentes, dans lequel ledit moyen de fixation comprend au moins un élément de fixation portant un moyen de fermeture de type Velcro® (35), fente (135), clip et/ou bouton (239) conçu pour une liaison à la structure de support.

11. Dispositif de support (1 ; 100 ; 200) selon l'une quelconque des revendications précédentes, dans lequel lesdits premier et second éléments de réglage (10, 10' ; 110, 110' ; 210, 210') permettent une commande indépendante du moyen de fixation longitudinal de position (31 ; 131 ; 231) agencé au niveau des extrémités transversales opposées de l'élément de matelas (2 ; 102 ; 202).

12. Dispositif de support (1 ; 100 ; 200) selon l'une quelconque des revendications précédentes, qui est fourni sous la forme d'un kit.

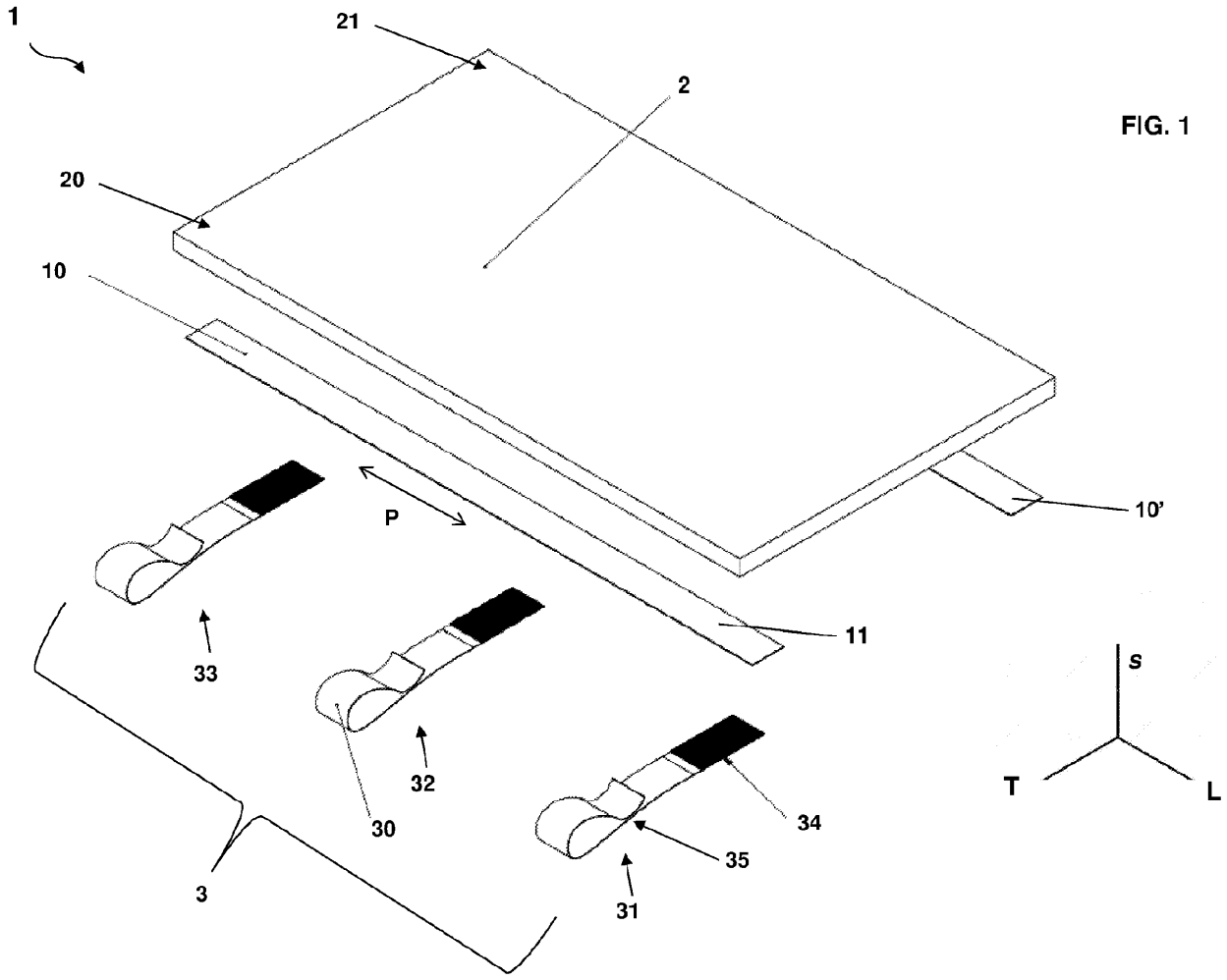

FIG. 1

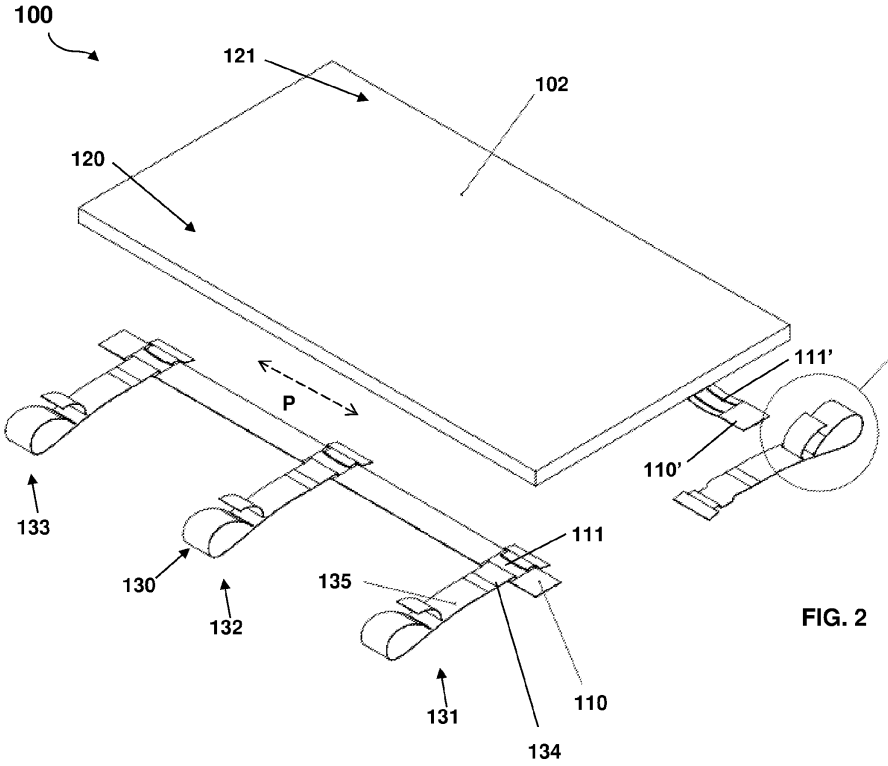

FIG. 2

FIG. 2A

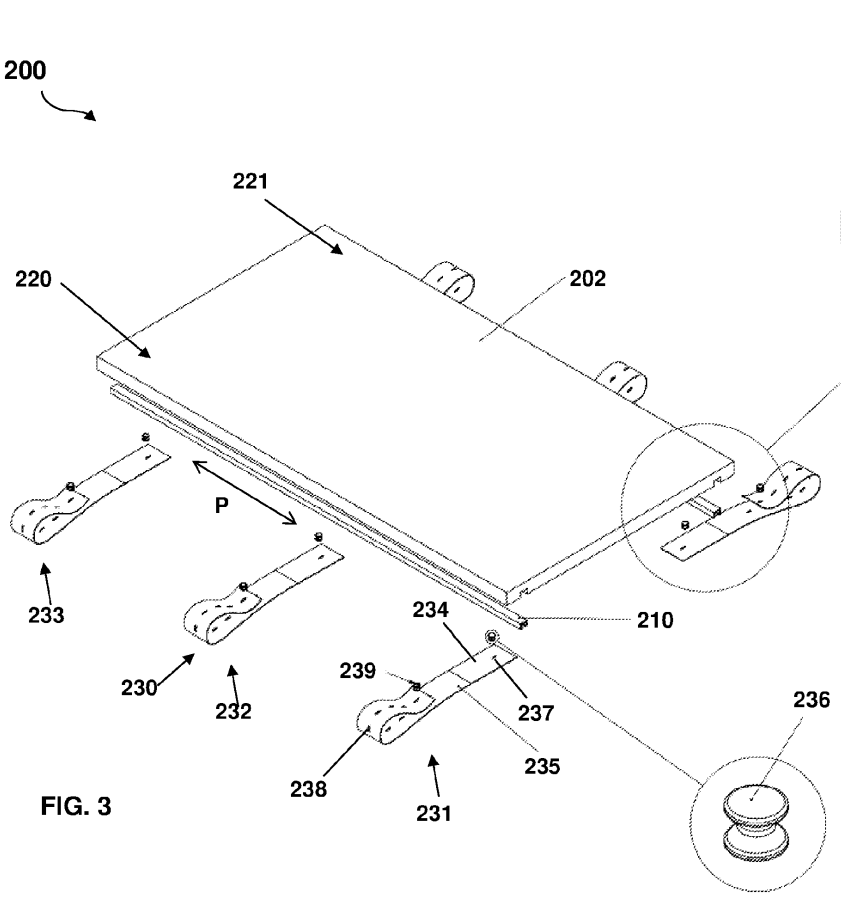

FIG. 3

FIG. 3A

FIG. 3B

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 10285890 B1 **[0006]**